REMARKS

Responsive to the Official Action mailed March 12, 2003, applicant has amended the claims of his application in an earnest effort to place this case in condition for allowance. Specifically, independent claim 9, and dependent claim 12 have been amended. Reconsideration is respectfully requested.

In response to the Examiner's rejection of claim 12 under 35 U.S.C. §112, claim 12 has been revised in accordance with the Examiner's helpful suggestion. It is believed this rejection can now be withdrawn. In rejecting claims under 35 U.S.C. §102 and §103, the Examiner has relied principally upon Japanese Patent No. 10-140458, to Yoshimura, which corresponds to U.S. Patent No. 6,080,466, with further reliance upon U.S. Patent No. 5,151,320, to Homonoff et al. However, a careful study of these references shows that they neither teach nor suggest the present invention as claimed, even when combined, and accordingly, the Examiner's rejections are respectfully traversed.

The present invention is directed to a unique nonwoven fabric structure which is clearly distinct from the teachings of the prior art. Applicant recognized that contrary to customary practice, a low basis weight filamentary fabric could be formed by hydroentangling a relatively lightly bonded spunbond precursor web. By preferably minimally bonding the spunbond precursor web, the precursor web can still be efficiently handled during processing, but can be effectively hydroentangled so that *the bonds are broken while the filamentary nature of the web is maintained.* There is simply no teaching or suggestion in the prior art of a nonwoven fabric which can be achieved in this fashion.

In connection with the teachings of Yoshimura et al., reference is made to the cited U.S. patent. Significantly, the teachings of this patent are specifically limited to the use of

hydroentanglement for *integration* of pulp fibers with a web of thermoplastic filaments. The principal thrust of this patent is to achieve enhanced machine direction elongation by subjecting the composite sheet of thermoplastic filaments and pulp fibers to creping.

At column 2, line 40 *et seq.* of Yoshimura et al. it is stated:

> The composite sheet to be creped according to the present invention comprises a web of thermoplastic continuous filaments, entangled with pulp fibers under water stream, and the major materials preferably pulp fibers.

There is no teaching or suggestion in this reference of lightly bonding a spunbond precursor web, and thereafter employing hydroentanglement for breaking the bonds and entangling the filaments. To the contrary, Yoshimura et al. is concerned with breaking the bonds of the *pulp fibers*:

> The pulp fiber sheet here should be formed to loosen the bonds between fibers during water stream entanglement so that the fibers may be individually separated. (Column 3, lines 18-21)

The Yoshimura et al. reference goes on to state:

> Entanglement *between pulp fibers and a continuous filament web* is accomplished only when a water column stream passes through pulp fiber layers to reach the continuous filament layer and further passes through said layer. (Column 3, lines 41-45; emphasis supplied.)

Thus, it is clear that Yoshimura et al. is limited in its teachings to entangling wood pulp fibers with a continuous filament web, and has no teaching or suggestion of breaking the bonds, and entangling the filaments of a spunbond precursor web. In fact, Yoshimura et al. *teaches away* from such a construct, in the Examples thereof, wherein a web formed from polypropylene long fibers is provided with "many point-fused regions in which said polypropylene fibers are self-fused to each other." (Column 4, line 41 *et seq.*)

Notably, the secondary Homonoff et al. reference is likewise limited in its teachings, and also contemplates formation of a composite fabric employing a spunbond base web material with wood pulp fibers integrated therewith. In distinction from the present invention, where the importance of relatively lightly bonding the precursor web is specifically disclosed, Homonoff et al. teaches away from such a technique, stating that "the type of prebonding of the base material is not believed to be critical" (column 3, lines 52 *et seq.*). The patent goes on to state that while the bond are may be "as low as 3-4%", it may be "up to about 50% bond area" (column 3, lines 56-57).

The thrust of the Homonoff et al. patent is to effect cross-stretching of the spunbond base web prior to integration with the wood pulp fabric. The use of heat to facilitate cross-stretching and setting is discussed:

> After the material has been cross-stretched, it may be heated very briefly to heat-set and stabilize the base web in its cross-stretched condition where the cross-stretching has occurred with little or no heating of the material. As will be appreciated, the cross-stretching can be carried out either with or without heating the base web material, but when the material is heated, the continuous filaments of the thermoplastic material tend to become more pliable and cross-stretching to a greater degree is achieved. (Column 4, lines 33-42).

Homonoff et al. goes on to describe use of hydroentanglement for integrating the wood pulp fibers with the spunbond fibrous web:

> This is achieved by passing the multi-layer structure under a series of fluid streams or jets that directly impinge upon the surface of the wood pulp cover layer with sufficient force to cause the short paper-making fibers to be propelled into and entangle with the stretched, spunbonded base web material. . . .The jets are operated at pressure sufficient to provide limited displacement and entanglement of some of the wood pulp fibers. . . . . (Column 6, lines 16 *et seq*).

It is thus clear that Homonoff et al., like the principal Yoshimura et al. reference, is specifically limited in its teachings to use of hydroentanglement for integration of wood pulp fibers with a spunbond polymeric web. Neither of these references in any way teach or suggest the present invention as claimed, wherein a nonwoven fabric is formed by subjecting a relatively lightly bonded spunbond filament web to hydroentanglement, to thereby break the filament bonds, and entangle the filaments.

In view of the foregoing, formal allowance of claim 9-12 is believed to be in order and such action is respectfully solicited. Should the Examiner wish to speak with applicant's attorneys, they may be reached at the number indicated below.

The Commissioner is hereby authorized to charge any additional fee which may be required in connection with this submission to Deposit Account No. 23-0785.

Respectfully submitted,

By _____
Stephen D. Geimer, Reg. No. 28,846

WOOD, PHILLIPS, KATZ, CLARK & MORTIMER
Citicorp Center, Suite 3800
500 West Madison Street
Chicago, Illinois 60661-2511
312/876-1800
June 11, 2003

CERTIFICATE OF MAILING

I hereby certify that this Amendment is being deposited with the United States Postal Service with sufficient postage at First Class Mail in an envelope addressed to: Mail Stop Non-Fee Amendment, Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450 on **June 11, 2003.**

_____